



THE DIGITAL
DIVIDE
p.28



THE IOT
DISRUPTION
p.32



THE H-1B VISA
CONUNDRUM
p.56

₹100

VOL XXXVI No 7 | JULY, 2018

www.dqindia.com

DATAQUEST

 CyberMedia

THE BUSINESS OF INFOTECH

DQ **35** YEARS

DECODING DIGITAL

Leading CIOs share their practical approach and best practices for Digital Transformation



Hyperscale: Redefining The Economics of Datacenters

Over the years, businesses have relied on datacenters to manage their applications and data cost effectively. However with changing business needs, these traditional datacenters often end-up becoming siloed in the way they manage workloads



Digitization has turned notions like scalability and customer engagement on their heads. As the digital ecosystem has evolved exponentially over the last decade, it has become extremely simple for individuals, teams and organizations to scale to hundreds of millions of users and devices (smartphones,

tablets, sensors, wearables, apps) across the world. In an earlier time, typical brick and mortar businesses (such as retail, banking, and aviation) have taken decades to build this kind of capability.

Not surprisingly, the lead on creating Hyperscale businesses was taken by technology giants. Companies

like Google, Amazon and Microsoft have, over the years, proven that it is not only possible, but also extremely cost effective to build Hyperscale systems with unmatched levels of reliability and virtually unlimited scalability – to serve a consumer base that runs into hundreds of millions. Prime examples being some of their own products – Google’s account base is upwards of 2.5 billion, and its search engine processes nearly 4 billion queries each day.

The notion of Hyperscale has now transcended the initial use cases (such as email, e-commerce, search, location tracking, etc.) to now find application in traditional consumer businesses. For example, mobile banking, wallets, food ordering apps, patient engagement portals, etc. With digital transformation, traditional businesses can very quickly overcome operational and customer engagement limitations. The challenge for these organizations is to leverage the vast amounts of data at their disposal, to drive innovation cost-effectively, and at unmatched scale. We are already seeing multiple examples of Hyperscale models enabling economic growth and customer value that was not possible earlier:

- **Real-time customer risk profiling in insurance:** Insurance premium calculations require customer risk profiling. This has traditionally been a back-office process, with customers needing to wait a few days before having premium information. The ability to process customer data in real-time allows customer service representatives to provide premium rates almost immediately, and accelerates the decision making process.
- **Decision support tools for e-commerce:** Customers are able to view price comparisons, predictive-analytics driven recommendations, curated content based on behavioural patterns. Such developments greatly

“Over the years, businesses have relied on datacenters to manage their applications and data cost effectively. However with changing business needs, these traditional datacenters often end-up becoming siloed in the way they manage workloads”

enhance customer engagement and satisfaction, and have a significant impact on profitability.

- **Analytics for enterprise strategy:** The ability to process and correlate large amounts of enterprise, consumer device data and social behaviour provides businesses with powerful insights to drive cost, profitability and market share.

Over the years, businesses have relied on datacenters to manage their applications and data cost effectively. However with changing business needs, these traditional datacenters often end-up becoming siloed in the way they manage workloads. Businesses need to have separate datacenter architectures to manage different types of workloads, e.g. high-volume, low transaction legacy data uses bare metal, while new, dynamic workloads for transactional applications use virtualized infrastructure.

With Hyperscale datacenters, the economics of IT infrastructure changes dramatically, with new, unmatched levels of performance and availability. These datacenters are much more optimized in the way IT can provide compute, network or storage resources. Of course, the concept of Hyperscale derives greatly from cloud computing, and leverages similar principles such as virtualization, multi-tenancy and automated provisioning. Here are some of the major aspects where Hyperscale datacenters actually redefine the economics of datacenters.

HANDLING NEW INFORMATION CHALLENGES

The world of enterprise information has become extremely dynamic and unpredictable. This requires a substantial amount of IT flexibility to manage large, diverse workloads. Also, enterprises have a larger need to store, manage, process and analyze streaming (real-time) information these days, as compared to earlier, when much of enterprise data was batch processes. With traditional datacenters, creating the necessary redundancy and flexibility these new information challenges will put a large amount of pressure on costs and resources. Hyperscale datacenters overcome these physical challenges of traditional datacenters by providing a virtualized infrastructure (IaaS), allowing automated provisioning and instant ability to scale up or ramp down, depending on volume and complexity of data.

CONVERGING DATACENTER RESOURCES WITH CLOUD MODELS

The modern Hybrid IT environment requires a single point of governance, with uniform policies across all IT resources (on-premise, datacenters, public / private cloud). Traditional



datacenters often have a large amount of variability and not-standard interfaces, depending on the workload type (static, streaming) and volume. Hyperscale datacenters provide a single standard integration layer for all workloads and resources. This makes it much easier and simpler to converge datacenter resources with different cloud models, provide a single governance layer and common IT management platform across the organization.

SUPERIOR PROVISIONING AND ORCHESTRATION

The ease of convergence with the enterprise IT environment, the consistency of standards and uniform governance enables superior provisioning and orchestration of various IT services. In cases where data flow is highly variable and dynamic, a uniform virtualization layer across all hosted infrastructure enables auto-scaling, load-balancing and workflow-driven configuration of newly provisioned resources (for both datacenter and cloud).

In fast growing businesses, where growth in digital data is often exponential, a uniform, all-encompassing virtualization layer makes IT infrastructure management much more efficient and cost-effective.

LARGE IMPROVEMENTS IN COMPUTE AND NETWORK UTILIZATION

Superior orchestration allows CIOs to drive higher levels of IT utilization. Using a software defined methodology / Administrator have the flexibility to quickly match workloads and provisioned resources (ramp up or scale down). IT administrators also have the ability to allocate compute and storage needs across different virtualized servers and racks, depending on usage patterns.

The immediate impact of this is in infrastructure design and capacity planning. Higher utilization rates reflect in reduced over-provisioning (a significant cost component of datacenter operations), driving down business costs (OPEX / CAPEX).

A major component of future enterprise IT strategy will be finding an optimal balance between various infrastructure deployment and management approaches. Multicloud, Hyper-Converged Infrastructure and Hyperscale are three independent notions that are aimed at further improving IT performance and lowering costs, in a fast-changing business environment. While it is often difficult to map IT architectural models to businesses, operational needs and market dynamics, CIOs must have a clear strategy to leverage multiple models and have a strong and uniform IT governance structure across various models.

In conclusion, Hyperscale datacenters offer real and significant benefits to large organizations that need to manage, process and analyze massive data volumes (online banking, gaming apps, wearable devices), drive powerful analytics applications (online-retail, digital businesses, social analytics), and have extremely high distributed computing needs (IoT based applications, industrial sensors, edge applications). To stay relevant in a fast-changing, highly-competitive and global business environment, both traditional and emerging businesses will need to have a strong understanding of Hyperscale economics and make it a necessary part of their long-term IT strategy.

(The author is Senior Vice President & Chief Product Officer, Netmagic (An NTT Communications Company))